

A REVISION OF THE SPIDERS OF THE GENUS
MISSULENA WALCKENAER 1805

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Fig 1.

Suborder MYGALOMORPHAE.

Superfamily OCTOSTIATAE.

FAMILY CUENIZIDAE.

Subfamily ACTINOPODINAE.

Genus MISSULENA Walckr. 1805, Tabl. Aran., p. 6 (type *accatoria*).

= *Eriodon* Latr. 1804, Nonv. Dict. Hist. Nat., xxiv, p. 134 (nom. nud.); Lucas 1865, Ann. Soc. ent. Fr. (4) v. p. 309, pl. 8; Auss. 1871, Verh. z. b. G. Wien, xxi, p. 142; L. Koch 1873, Die Arachn. Austr., i, p. 454; Simon 1892, Hist. Nat. d. Araignees, i, p. 81; Hogg 1891, P.Z.S., p. 219, *ibid.* 1901, p. 223; Rainbow 1911, Rec. Austr. Mus., ix (2), p. 107.

Pachylosectis Lucas 1834, Ann. Soc. ent. Fr., iii (ad part *nigripes*, *rufipes*) p. 363-4.

Sphodros Walckr. 1837, Ins. Apt., i, p. 246.

Closterochilus Auss. 1871, Verh. z. b. G. Wien, xxi, p. 141.

Theragretes Auss. 1871, *ibid.*, p. 142.

Missulena Rainbow and Pulleine 1918, Rec. Austr. Mus., xii (7), p. 87.

Actinopus Rainbow 1896, Proc. Linn. Soc. N.S.W., xxi, p. 328, pl. xx, *op. cit.* 1897, xxii, p. 253.

Pars cephalica very high and wide. Ocular area wide (occupying almost the entire width of the front of the pars cephalica) and narrow. Eyes small, anterior row straight or only slightly procurved, AME close together and widely separated from ALÉ; posterior row strongly recurved so that the PME lie almost in a line with the anterior eyes, and nearer to ALÉ than to PLE. Chelicerae thick and strong, their bases occupying the entire front of the cephalothorax, apex of basal segment rounded and armed with a rastellum. Maxillae without a lobe but with the inner anterior corner produced into a blunt process, furnished with numerous blunt short spines in female (often incipient or absent in male). Labium longer than broad at the base, inserted immovably in the front of the sternum, apically rounded, often with numerous short stout spines especially in female. Sternum as long as broad, with 3 pairs of distinct sigilla, the posterior pair large and oval and distinctly separated from margins, the anterior pairs are small and there is actually a small fourth pair immediately behind the insertion of the labium, the third pair is frequently divided into two lying side by side. The sexes are well differentiated.

♀ Large and robust with relatively short stout legs. Pars cephalica and chelicerae generally concolorous with the rest. Tarsi and metatarsi with numerous

ventral spines. Claws 3, upper claws slightly dissimilar, mostly with a single large inner basal tooth. Palpal tarsus with a single claw similar to upper claws of legs. Spinnerets 4, superior 3-segmented, basal segment largest, apical shortest; inferior 2-segmented.

♂ Usually much smaller and with more slender legs. Pars cephalica and chelicerae frequently of a bright red and so differentiated from the rest of the body. Metatarsi and tarsi of legs III and IV with scopulae. Patella of legs I and III dorsally with a pad of short stout spines. Palpal tarsus with a spiral hamatodocha and a long slender stigma. Claws 3, upper with a single row of a number of teeth, often dissimilar, lower with fewer teeth. Spinnerets 4, superior 3-segmented as in female, inferior 1-segmented.

This genus of trap-door spiders is confined to Australia. Hogg (P.Z.S. 1901) lists eleven species as having been described, in every case from only one sex or the other. He considers that they can be reduced to at least eight species. Since his paper, however, two other very distinct species, *M. bradleyi* (Rainbow 1914) and *M. reflexa* R. and P. 1918 have been added, in each case from male specimens only.

In this paper a large amount of material from the South Australian Museum collection, and loaned from the collections of the Australian Museum, Sydney, the West Australian Museum, Perth, and Dr. V. V. Hirkman, of Hobart has been examined, the result of which shows that at present not more than 6 valid species can be recognized, excluding the two species described by Lucas in 1834 as *nigripes* and *rufipes* but not recognized since. According to Hogg (1901) these are possibly ♂ and ♀ of the one species, and Simon (1892) after examining the type of *nigripes* finds it to be a typical *Missulena* (*Eriodon*) and regards the locality, South America, as erroneous.

In his key to the species Hogg (1901) gives the AME of *M. formidabile* (Camb.) as being 4 diameters apart, although Cambridge's figures (J. Linn. Soc. London, x, 1868, pl. i, fig. 3 and 4) show them to be not more than 2 diameters apart. Amongst the large number of specimens of this genus which I have been able to examine, not one has such widely separated AME as stated by Hogg. The AME (post-barillar) of species of *Missulena* show a very distinct iris which is much more easily observable and measurable than the larger cornea, and it would seem that Hogg in re-examining the type of *formidabile* measured the iris and not the cornea. In addition Hogg states that *formidabile* is a much larger species than *occatoria*, 26 mm. as against 20 mm. in length. The females of specimens of the latter species are very variable in size and some quite reach the length of 26 mm. given for *formidabile*.

Judging from the number of specimens available the females of *rubrocapitata* and the males of *occatoria* are the most abundant and widespread species, yet I have not been able to separate any females as belonging to *occatoria* or any males as *rubrocapitata*. The so-called ♀ of *rubrocapitata* described by Rainbow (Rec. Austr. Mus. 1903, v (1), p. 65) is that of *insigne* (O.P. Camb. 1877) of which I have a number of specimens of both sexes. It follows then that both *formidabile* and *rubrocapitata* are females of and synonymous with *occatoria*.

M. incertum (Camb. 1877) is, I consider, the same as *granulosum* (Camb. 1870) but *M. incertum*, Hogg 1901, is a different species for which the new name, *huggi* is proposed.

To help in clearing up what has been a tangle for some years, redescriptions of the species considered as valid are given in much detail based on morphological characters now recognized by Arachnologists. Of the six species now recognized, four are known from both sexes.

Little seems to be known about the tubes constructed by species of this genus, beyond the observation of Dr. Palleine (Rec. Austr. Mus. 1918, xii (7), p. 82) that the tubes of *M. occatoria* have a door of the wafer type without any admixture of soil particles.

MISSULENA OCCATORIA Walekr. 1805.

- Missulena occatoria* C. A. Walekenauer 1805, Tabl. d. Arab., p. 8, pl. ii, fig. 11-14;
id. Ins. Apt. 1837, i, p. 252.
- Eriodon occatorium* Lucas 1865, Ann. Soc. ent. Fr., ser. 4, v, p. 309, pl. viii; L. Koch
 1873, Die Arachn. Austr., p. 457; Hogg 1901, Proc. Zool. Soc., p. 220; Rainbow
 1903, Rec. Austr. Mus., v, No. 1, p. 62, fig. 5.
- Eriodon formidabile* O.P. Cambridge 1868, J. Linn. Soc. London, x, p. 266, pl. ix;
 L. Koch, Die Arachn. Austr., 1873, p. 454; Hogg 1901, Proc. Zool. Soc., p. 222.
- Eriodon rubrocapitatum* Auss. 1875, Verh. z. b. Ges. Wien, xxv, p. 140, pl. v, fig.
 1-4; Hogg 1901, Proc. Zool. Soc., p. 226, fig. 23a; see Rainbow 1903, Rec.
 Austr. Mus., v, No. 1, p. 64, fig. 6.
- Eriodon semicoccineum* Simon 1896, in Simon, Zool. Forsch. Austr. Malay
 Archipel., lfg. viii, p. 343; Hogg 1901, Proc. Zool. Soc., p. 228.
- Actinopus formosus* Rainbow 1896, Proc. Linn. Soc. N.S.W., xxi, p. 328, pl. xx;
op. cit. 1897, xxv, p. 253.
- Missulena (Eriodon) occatoria* Hogg 1908, Proc. Zool. Soc., p. 335, fig. a-d.
- Missulena rubrocapitata* Rainbow and Pulleine 1918, Rec. Austr. Mus., xxi, No. 7,
 p. 88, pl. xii, fig. 1-2.
- Missulena formidabile* R. and P. 1918, Rec. Austr. Mus., xv, No. 7, p. 89.

Text fig. 1A-N.

♂ (One of two specimens in S.A. Museum collected from Mt. Lofty, S. Aust.,
 May 1937, R. Lowe.)

Total length (excluding chelicerae and spinnerets)	12.5 mm.
Length of Cephalothorax	6.0 mm.
Width of Cephalothorax	7.0 mm.
Length of Abdomen	7.0 mm.
Width of Abdomen	6.0 mm.

Lengths of leg and palpal segments in millimetres.

	Femur.	Patella.	Tibia.	Metatarsus.	Tarsus.	Total.
Leg I	5.3	2.7	3.0	2.6	2.1	15.7
Leg II	4.8	2.6	2.5	2.5	2.0	14.4
Leg III	4.5	2.5	2.2	2.5	2.0	13.7
Leg IV	5.1	2.8	3.3	3.0	2.2	16.4
Palp	4.8	2.5	4.0	—	1.5	12.8

Width of 1st patella at "knee" 1.5 mm.; tibial index 26.3.

Width of 4th patella at "knee" 1.6 mm.; tibial index 26.2.

Carapace. Ovate, truncate in front, 6.0 mm. long, 7.0 mm. wide, rear margin incised. Thoracic fovea deep medially and strongly procurved, radial furrows distinct, a deep longitudinal groove from behind middle of fovea, lateral margins reflexed. Pars cephalica 3.0 mm. high, 3.8 mm. long, bright scarlet and finely rugose, with a fine longitudinal line from middle of ocular area; clypeus white, separated from AME by two eye diameters and laterally widening to its distance from ocular area. Pars thoracica black, slightly and finely rugose, apparently without hairs except a few black ones on margins.

Eyes. Ocular area much wider than long, 3.7 mm. by 0.7 mm. AME on a slightly raised, dark pigmented tubercle, each eye circular, 0.25 mm. in diameter. Anterior row of eyes slightly procurved, posterior row strongly recurved. ALE raised, oval, inclined, 0.2 mm. diam., 1.3 mm. from AME, base black. PLE raised, oval, inclined, 0.2 mm. diam., 0.7 mm. from ALE and 3.0 mm. apart; PME oval, sessile 0.18 mm. diam., their anterior edge in line with posterior edge of ALE, 2.4 mm. apart.

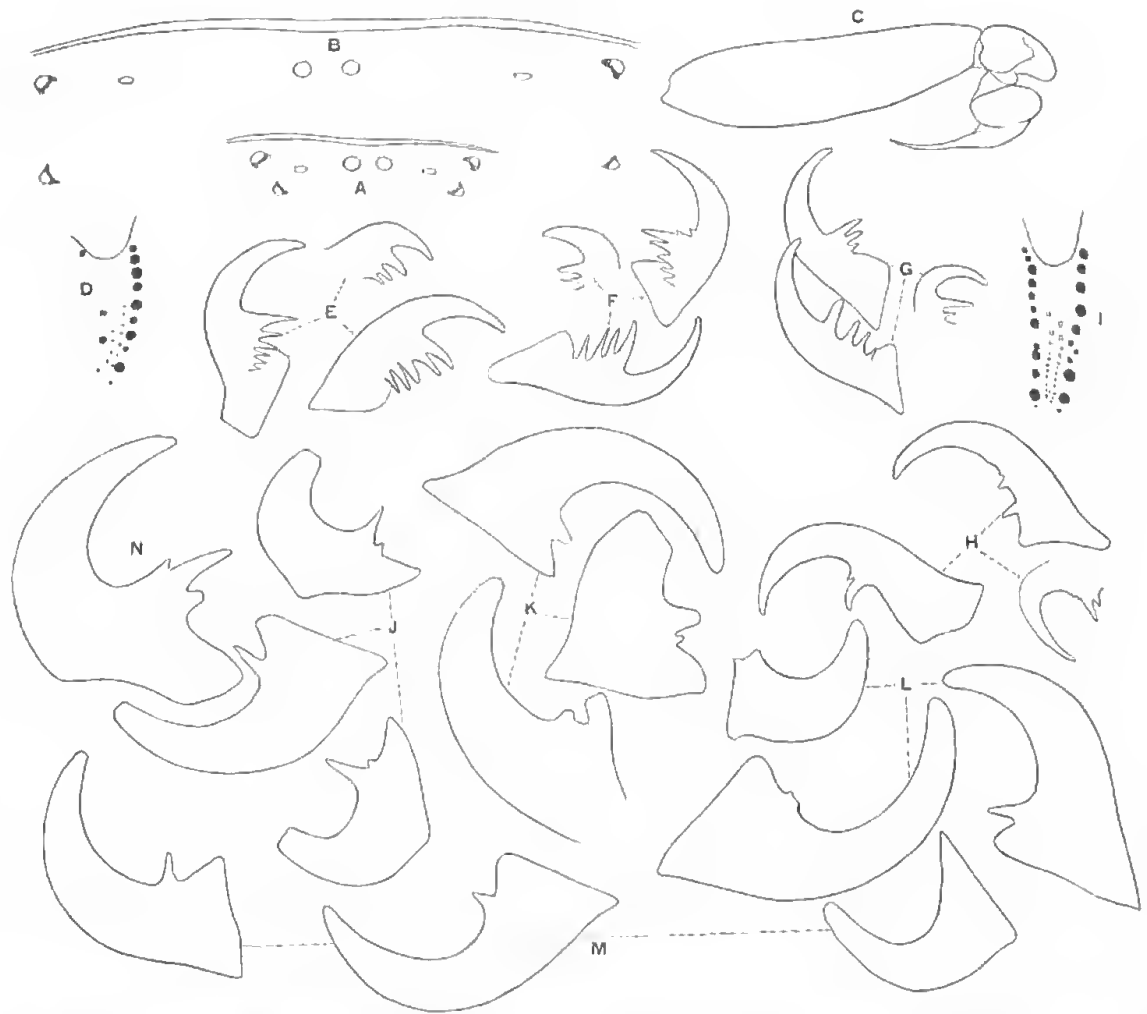


Fig. 1. *Missulena occatoria* Walckr. A. eyes of ♂ × 9, B. eyes of ♀ × 9, C. palp of ♂, D. cheliceral teeth ♂, E. claws of leg I ♂, F. ditto leg II, G. ditto leg III, H. ditto leg IV, I. cheliceral teeth ♀, J. claws of leg I ♀, K. ditto leg II, L. ditto leg III, M. ditto leg IV, N. claw of palp ♀.

Chelicerae. Basal segment 4.5 mm. long, bright scarlet, shining with transverse striations, rastellum of 10–12 black spines; fangs dark, 2.5 mm. long, curved, promargin of furrow with 8–9 medium to large teeth (cf. fig. 1, D), retromargin with 3 small teeth, a few tuberosities between margins, a scopula of reddish hairs present.

Labium. Longer than broad, 1.6 mm. by 1.0 mm., sides tapering, apically rounded with only short spines. Colour reddish with black hairs.

Sternum. 3.8 mm. long by 3.8 mm. wide, almost black in colour except for a narrow reddish band just behind insertion of labium. Sigilla 4 pairs, pos-

terior large and oval, occupying about half of sternum and distinctly separated from margins; anterior pairs of sigilla small, second pair from front subdivided. Clothing of black hairs.

Maxillae. 2.8 mm. long by 1.8 mm. wide, with a strong scopula of brownish red hairs and furnished with a number of short, almost incipient spines. Colour reddish with black hairs.

Legs. 4.1-2.3. Black or dark brown with light brown hairs. Trichobotria on all tibia, farsi and metatarsi. Tarsal claws 3, upper claws with 3-6 teeth dissimilar (cf. fig. 1, E-II), lower claws with 2-3 teeth. Tarsi and metatarsi III and IV with a ventral scopula of short blunt red hairs.

Palpi. Blackish with black hairs. Genital bulb reddish black. Stigma very slender, about $\frac{2}{5}$ length of tibia, blackish.

Spines. Patella, tibia, metatarsus and tarsus of all legs with numerous strong spines ventrally, those on metatarsi and tarsi of legs III and IV ventrolateral. Patella of all legs with strong, short, inclined spines, dorsal and few on II and IV, more, and forming a pad or accessory rastellum, on I and III and placed somewhat prolateral. All spines black.

Abdomen. Ovate, arched, and slightly overhanging base of cephalothorax, dorsally black with long black hairs and short fine spine-like hairs, not shining. Venter similar except that in front of epigastric furrow it is chitinized, shining and with a brown tinge concolorous with the sternum.

Spinnerets. Four, basal segment of superior and the inferior spinnerets black; other segments of superior brownish black; intersegmental membrane white. Superior 2.2 mm. long, inferior 0.9 mm. long.

♀ (Specimen from Whyalla, S. Aust., August 1938).

Total length (excluding chelicerae and spinnerets)	26.0 mm.
Length of Cephalothorax	12.0 mm.
Width of Cephalothorax	12.7 mm.
Length of Abdomen	17.0 mm.
Width of Abdomen	14.0 mm.

Lengths of leg and palpal segments in millimetres.

	Femur.	Patella.	Tibia.	Metatarsus.	Tarsus.	Total.
Leg I	7.1	5.0	4.2	3.7	2.5	22.5
Leg II	6.3	5.0	4.0	3.7	2.6	21.6
Leg III	6.5	5.4	4.0	3.8	2.8	22.5
Leg IV	8.0	6.0	5.0	3.8	2.7	25.5
Palp.	6.2	4.0	4.2	—	4.5	18.9

Width of 1st patella at "knee" 3.0 mm.; tibial index 32.6.

Width of 4th patella at "knee" 3.5 mm.; tibial index 31.8.

Carapace. Broadly ovate, shining, wider than long, 12.0 mm. by 12.7 mm., truncate in front, incised posteriorly. Thoracic fovea deep medially, strongly procurved, radial furrows distinct, a fairly deep longitudinal groove from middle of fovea, margins strongly reflexed. Pars cephalica 7.0 mm. high, 8.5 mm. long, a dark chocolate brown in colour with a few dark hairs in front of ocular area and along a slight depressed longitudinal line from middle of ocular area, and a few sparse hairs on disc. Clypeus white, as wide as the diameter of one AME and separated therefrom by two diameters. Pars thoracica smooth, shining, concolorous with pars cephalica, slightly raised on disc.

Eyes. Ocular area very much wider than long, 7.5 mm. by 1.8 mm. AME

sessile, 0.2 mm. diam. and two diameters apart. Anterior row practically straight, posterior row strongly recurved so that PME are almost in line with anterior eyes. ALE raised, oval, inclined, 0.2 mm. diam., separated from AME by 3.2 mm. PLE raised, oval, inclined, 0.18 mm. diam. separated from each other by 7.0 mm. and from ALE by 1.1 mm., PME oval, horizontal, sessile 0.25 mm. diam. and 2.0 mm. apart from AME, their anterior edges in line with posterior edges of AME and ALE.

Chelicerae. Basal segment large, 10.2 mm. long, chocolate brown in colour, with thick clothing of reddish brown hairs, with rastellum of 12-20 stout reddish brown spines; fangs dark chocolate brown to black at the tip, 8.5 mm. long, strong and curved; promargin of cheliceral groove with 7-8 large and almost uniform teeth, retromargin with 11-12 only slightly smaller and rather less uniform teeth, numerous tuberosities between the margins; with slight scopula of brownish hairs.

Labium. Longer than broad, 4.5 mm. by 2.7 mm., sides tapering, apex rounded, with numerous spines and reddish black hairs; colour reddish brown.

Sternum. 8.0 mm. wide by 8.0 mm. long, chocolate brown; with 4 pairs of sigilla, posterior pair oval, large, well separated from margins; second pair from front subdivided; clothing of blackish hairs.

Maxillae. 6.5 mm. long, 4.0 mm. wide with scopula of long reddish hairs, and furnished with numerous strong spines.

Legs. 4.3-1.2. Stout, dark chocolate brown; all tibiae, metatarsi and tarsi with trichobothria. Tarsal claws 3, superior with one strong inner basal tooth and occasionally a small one in the basal angle; inferior claw with one or no teeth. All legs without scopulae.

Palpi. Dark chocolate brown, intersegmented membrane white; patella, tibia and tarsus with trichobothria and all segments with strong black hairs; tarsus with a single claw with a strong inner basally trifurcate tooth, the outer denticles of which are shorter than the inner.

Spines. Tibiae, metatarsi and tarsi with a number of spines ventrally, those on tarsi and metatarsi III and IV extending laterally. No spines on the patella of any leg.

Abdomen. Ovate, arched, overhanging base of cephalothorax; dorsally and ventrally dark chocolate brown, barely shining, finely granulose, with long black hairs interspersed with shorter and slightly stronger hairs. In front of epigastric furrow shining and concolorous with sternum.

Spinnerets. Four, superior 4.2 mm. long, chocolate brown, with white intersegmental membrane; inferior 1.2 mm. long.

Loc. of the specimens examined.

♂♂ South Australia: Meadows 1908 (2); Mt. Lofty 5/1933 (2), 5/1937 (2); Pinda 4/1936 (1); Adelaide 1937 (2); Timby Bay 6/1938 (1); Bridgewater 4/1940 (1); Peterborough 4/1940 (1); unlocalized (3).

Western Australia: 90 Mile Desert 10/1907 (2); Bridgetown 26/322 (1); Laverton 26/715 (1); Buniche 32/417 (1); Wurarga 32/1434 (1); Wubin 33/1614 (1); Canning Br. 33/1537 (1).

New South Wales: Tarcoon 6/1927, K 56291 (1); Canley Vale 3/1928, K 58932 (1); Macquarie Fields 6/1929, K 61640 (1); East Hills 6/1929, K 59698 (1); Wentworthville 3/1930, K 61597 (1); Longreach, K 3914 (2, as *formosus*); Rydal, K 19073 (1).

31 specimens.

♀♀ South Australia: Mallala 5/1908 (1); Lameroo 5/1935 (1); Adelaide 1937 (1); Cadell 5/1937 (1); Whyalla 8/1938 (1); Ardrossan 8/1938 (1); Belair 8/1938 (1); Mt. Lofty (no date, 1); Adelaide 11/1929; S. Aust. unlocalized, K 46833 (2).

Victoria: Swan Hill 5/1928 (1).

Western Australia: 90 Mile Desert 10/1907 (2); Mt. Lawley 9/1928-630; Perth 1915-467.

New South Wales: Stewart Town K 9420 (as *formidabile*) (1); Granville K 4367 (as *formidabile*) (1); N. Strathfield 6/1929, K 59217; Willcannia K 35100 (1); Chatswood K 3309 (1); Mosman K 14173 (1).

22 specimens.

MISSULENA INSIGNE (O.P. Cambridge 1877).

Eriodon insigne O.P. Cambridge 1877, Ann. Mag. Nat. Hist., ser. 4, xix, p. 29; ? nec Hogg, Proc. Zool. Soc. 1901, p. 223, fig. 21a, b.

Eriodon rubrocapitatum, ♀, Rainbow 1903, Rec. Austr. Mus., v, No. 1, p. 64, fig. 6.

Missulena insigne, Rainbow and Pulleine, 1918, Rec. Austr. Mus., xii, No. 7, p. 87.

Text fig. 2A-1.

♂ Total length (excluding chelicerae and spinnerets)	8.5 mm.
Length of Cephalothorax	5.0 mm.
Width of Cephalothorax	6.0 mm.
Length of Abdomen (shrivelled)	4.5 mm.
Width of Abdomen	4.0 mm.

Lengths of leg and palpal segments in millimetres.*

	Femur.	Patella.	Tibia.	Metatarsus.	Tarsus.	Total.
Leg I	5.0	1.9	3.2	3.0	1.8	14.9
Leg II	4.4	2.0	2.6	2.6	1.8	13.4
Leg III	3.8	1.9	2.1	2.4	1.8	12.0
Leg IV	4.2	2.0	3.0	3.1	1.8	14.1
Palp.	4.5	2.5	4.0	—	1.0	12.0

Width of 1st patella at "knee" 1.0 mm.; tibial index 19.6.

Width of 4th patella at "knee" 1.0 mm.; tibial index 20.0.

Carapace. Ovate, truncate in front, 5.0 mm. long, 6.0 mm. wide, posterior margin incised. Thoracic fovea deep procurved, radial furrows distinct, lateral margins reflexed. Pars cephalica 1.7 mm. high, 3.0 mm. long, bright red, faintly rugose with slight medial longitudinal line. Clypeus narrow, equal to diameter of one AME and about two diameters therefrom. A few long black hairs in front of ocular area and some shorter ones along medial line. Pars thoracica chocolate brown with slight purplish tinge, rugose, slightly raised medially, a few brownish black hairs on margin.

Eyes. Ocular area very much wider than long, 2.6 mm. by 0.7 mm. AME on slightly raised tubercle pigmented with black, each eye 0.15 mm. diam., round and separated from its neighbour by 1 diameter, each eye surrounded by black pigment touching in the mid-line. Anterior row of eyes straight or very slightly procurved, posterior row strongly recurved. ALA raised, oval, inclined, 2.5 mm. apart, 0.2 mm. diam., the base with black pigment, and separated from AME by slightly more than 5 diameters. PLE raised, oval, inclined, 0.15 mm. diam. and separated

* Average of three specimens, one each from Latham and Forest Grove, Western Australia, and one from Keith, South Australia.

by 2.0 mm., base black, 0.35 mm. from ALI. PME sessile, oval, 0.12 mm. diameter, 1.5 mm. apart, their anterior edges in line with posterior edges of AME and ALI.

Chelicerae. Basal segment bright red, 3.0 mm. long with transversely lightly rugose surface with light clothing of long black hairs especially distally, with rastellum of 2-5 spines. Fangs 2.0 mm. long, brownish red, curved. Promargin of furrow with 3-4 large and about 6 small teeth, retromargin with 2 moderately large and 4 small teeth, a few small tubercles basally between furrow margins (cf. text fig. 2E), with a slight scopula of long hairs.

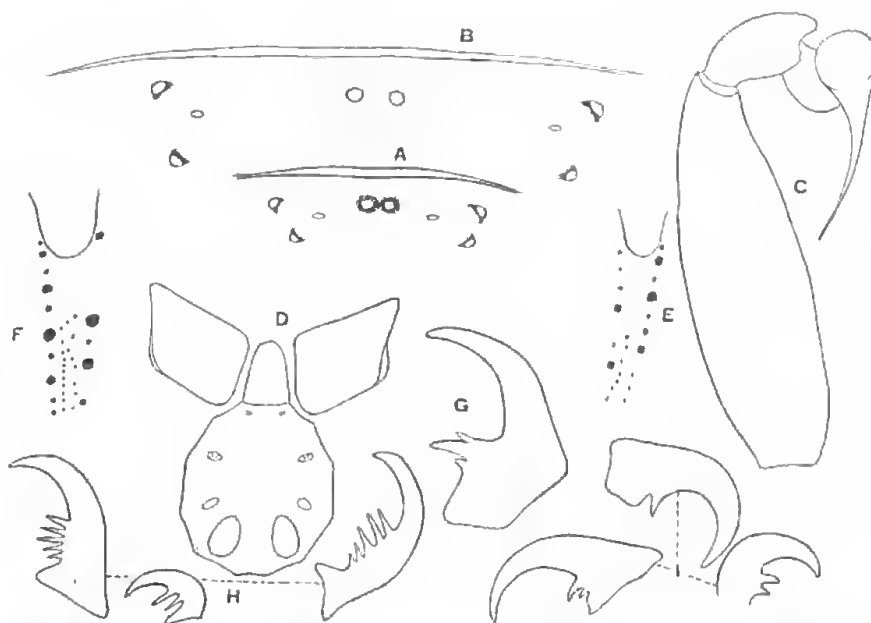


Fig. 2. *Missulena insigne* (Camb.). A. eyes of ♂ × 9, B. eyes of ♀ × 9, C. palp of ♂. D. labium, sternum and maxillae ♂, E. cheliceral teeth ♂, F. ditto ♀, G. claw of palp ♀, H. claws of leg I ♂, I. ditto ♀.

Labium. Longer than broad at base, sides tapering anteriorly, apex rounded, with long hairs but no spines, not even incipient ones. Colour reddish.

Sternum. Bright reddish, tinged with brown posteriorly. 2.5 mm. long by 2.5 mm. wide, with long reddish hairs. Sigilla 4 pairs, distinct, posterior large, oval, distinctly separated from margins, others small.

Maxillae. 2.0 mm. long by 1.5 mm. wide, with a scopula of long reddish hairs, but no spines. Colour reddish.

Legs. 1.4.2.3. Chocolate brown with slight purplish tinge. Trichobothria on all tibiae, metatarsi and tarsi. Tarsi and metatarsi III and IV with a scopula of short blunt yellowish hairs. Tarsal claws 3, upper with 5 teeth only, slightly dissimilar, lower with 2 teeth.

Palpi. Chocolate brown with purplish tinge, clothed with blackish brown hair. Genital bulb spiral, stigma slender, about half the length of tibia.

Spines. Patella, tibia, metatarsus and tarsus of all legs ventrally with rather long strong spines, those on metatarsus and tarsus III and IV ventrolateral. Patella of all legs with a number of short strong inclined spines dorsally, few on II and IV, more and forming a pad or accessory rastellum on I and II and placed somewhat prolaterally. All spines black.

Abdomen. Ovate, arched and slightly overhanging base of cephalothorax dorsally, with long black hairs and short fine spine-like hairs, not shining; ven-

trally similar except anterior of epigastric furrow which is ebituized, shining and concolorous with sternum.

Spinnerets. Four. Superior 1.2 mm. long, basal segment the longest, apical very short. Inferior 0.5 mm. long. Colour brown.

♀ Total length (excluding chelicerae and spinnerets)	17.0 mm.
Length of Cephalothorax	8.0 mm.
Width of Cephalothorax	9.0 mm.
Length of Abdomen	10.0 mm.
Width of Abdomen	8.0 mm.

Lengths of leg and palpal segments in millimetres.

	Femur.	Patella.	Tibia.	Metatarsus.	Tarsus.	Total.
Leg I	6.3	3.6	3.2	3.0	2.0	18.1
Leg II	5.5	3.5	4.0	3.0	2.0	18.0
Leg III	5.2	3.0	3.0	3.2	2.0	16.4
Leg IV	5.5	4.0	3.5	3.0	2.0	18.0
Palp.	5.5	2.5	3.0	—	2.5	13.5

Width of 1st patella at "knee" 2.0 mm.; tibial index 32.3.

Width of 4th patella at "knee" 2.5 mm.; tibial index 33.3.

Carapace. Ovate, dark chocolate brown except in front of pars cephalica where it is reddish, front margin truncate, posterior margin incised, 7 mm. long, 9.0 mm. wide. Thoracic fovea deep, procurved, radial furrows distinct, margins reflexed. Pars cephalica 4.5 mm. high, 3.5 mm. long, smooth, shining. Clypeus narrow, equal to one AME in width and separated by two diameters therefrom. A few long brown hairs in front of ocular area and scattered on disc. Pars thoracica dark chocolate, smooth, with scattered brown hairs; slightly raised medially and on margins.

Eyes. Ocular area much wider than long, 5.5 mm. by 1.1 mm. AME on a very slightly raised tubercle round, 0.2 mm. diam., each eye separated by $1\frac{1}{2}$ diam., no surrounding black pigment. Anterior row of eyes straight, posterior row strongly recurved. ALE broadly oval, raised, inclined, 0.25 mm. diam., 5.5 mm. apart, 2.3 mm. from AME, base with black pigment. PLE oval, inclined, raised, 0.25 mm. diam., 0.7 mm. from ALE and 5.0 mm. apart, base black pigmented. PME oval, horizontal, sessile, white, 0.17 mm. diam., 4.5 mm. apart, anterior edges slightly behind line of posterior edges of ALE.

Chelicerae. Basal segment reddish, but not scarlet as in ♂, smooth, shining, 6.5 mm. long, with numerous long reddish hairs; rastellum of 10–12 dark stout spines. Fangs 4.5 mm. long, black, curved, moderately thick. Promargin of furrow with 4–5 large teeth and 5–6 small ones, retromargin with 4 large teeth, with slight scopula.

Labium. Longer than broad at the base, sides only slightly tapering, 2.6 mm. by 1.8 mm., apex rounded with a number of short peg-like spines. Colour chocolate brown.

Sternum. Chocolate brown 5.0 mm. long by 5.0 mm. wide, with long blackish hairs. Sigilla 4 pairs, second pair subdivided, posterior pair large, oval, and well separated from margins.

Maxillae. 4.5 mm. long by 4.0 mm. wide, with scopula of reddish hairs and numerous short peg-like spines. Colour chocolate brown.

Legs. 1.4–2.3. Chocolate brown with slight purplish tinge, trichobothria on

all patellae, tibiae, metatarsi and tarsi. No legs with scopulae. Tarsal claws 3, superior with 1 or 2 teeth, dissimilar, inferior with 2 teeth (cf. fig. 2H).

Spines. Tarsi and metatarsi of all legs with many long strong spines ventrally, on legs III and IV also ventrolaterally.

Abdomen. Dark brown with long brown hairs dorsally and ventrally; hardly overlapping cephalothorax.

Spinnerets. Four, superior 1.8 mm. long, inferior 0.8 mm., chocolate brown.

Remarks. As with most of the described species of this genus, only one sex was included in the original descriptions, in this case the male; and all hitherto published records are of the same sex. Amongst the material sent to me from the West Australian Museum, Perth, are two females which can definitely be correlated with the male, and the above description of that sex is drawn up from one of these. The specimen described by Rainbow (1903) as the then unknown female of *rubrocapitatum* and which I have been able to examine is undoubtedly to be referred to *insigne* as will be evident when his description is compared with the one given above. Rainbow's specimen was from Kalgoorlie, Western Australia, and was sent to him with a male from the same locality. The male, however, was not described but only referred to the same species, so that it is not possible to say whether it belongs to *insigne* or not. Hogg's description (1901) from several males from Dimboola, Victoria, is somewhat doubtful for he states that the colour of the pars thoracica, abdomen and legs was black, whereas the original description of Cambridge gives the pars thoracica as "brownish black", and the legs and palpi as "a dark shining brown colour, tinged very slightly with metallic purplish", which agrees fully with the material before me. *M. insigne* is the only species so far known, in which the ♀ has the pars cephalica in part and the chelicerae wholly red, although not of the bright colour of the males of this and some other species.

Loc. and specimens examined.

♂♂ South Australia: Keith, no date (4), (2. K 40831); Warburton Ranges, no date (1).

Western Australia: Kondinum 24-616 (1); Merredin 25-424 (1); Nukarni 27-838 (1); Morawa 29-437 (1); Latham 30-466 (1); Forest Grove 31-660 (1).

New South Wales: Loc. ?, K 12868 (1) as *formosum*; Leeton 4/29 (1); Rankines Springs, Pembroke Potts 5/27, K 56267; Tumblong 4/28, K 57756; Wija via Wyalong 4/28; Penrith 4/28, K 57749; Cowra 1928, K 57696; Canley Vale 5/29, K 58929.

Queensland: Brisbane, no date (1).

20 specimens.

♀♀ Western Australia: Worawa, 29-440 (1); Burracoppin, 32-1429 (1); Mukinbudin, 33-1523 (1); Kodanooka, 33-1518 (1); Kalgoorlie, K 11920 (as Rainbow's type of *rubrocapitatum*) (1).

New South Wales: West Wyalong, K 48135 (1).

6 specimens.

MISSULENA GRANULOSA (O.P. Cambridge 1870).

Eriodon granulorum O.P. Cambridge 1870, J. Linn. Soc., London (Zool.), x, p. 268; Hogg 1901, Proc. Zool. Soc. (2), p. 222.

Eriodon crassum O.P. Cambr. 1870, J. Linn. Soc. London (Zool.), x, p. 269; Hogg 1901, Proc. Zool. Soc. (2), p. 222.

Eriodon incertum O.P. Cambr. 1877, Ann. Mag. Nat. Hist., ser. 4, xix, p. 30; nec Hogg 1901, Proc. Zool. Soc. (2), p. 224.

Text fig. 3A-N.

♂ Total length (excluding chelicerae and spinnerets)	12.0 mm.
Length of Cephalothorax	6.5 mm.
Width of Cephalothorax	8.0 mm.
Length of Abdomen (shrivelled)	7.5 mm.
Width of Abdomen	6.0 mm.

Lengths of leg and palpal segments in millimetres.

	Femur.	Patella.	Tibia.	Metatarsus.	Tarsus.	Total.
Leg I	6.5	3.0	3.7	3.2	2.0	18.4
Leg II	5.5	3.0	3.4	3.2	2.0	17.3
Leg III	5.0	2.8	2.7	3.0	2.0	15.3
Leg IV	6.0	3.2	3.5	3.5	2.0	18.2
Palp.	6.0	3.2	4.5	—	2.0	15.7

Width of 1st patella at "knee" 1.5 mm.; tibial index 22.4.

Width of 4th patella at "knee" 1.8 mm.; tibial index 26.8.

Carapace. Ovate, truncate in front, 6.5 mm. long by 8.0 mm. wide, rear margin slightly incised. Thoracic fovea deep medially, strongly procurved, radial furrows distinct, lateral margins reflexed and granulose. Pars cephalica 3.5 mm. high and 4.0 mm. long, black without any trace of red, strongly rugose, almost tuberculate, with longitudinal median line from behind ocular area. Clypeus reddish, about one AME in width, separated from AME by two eye diameters. A few long black hairs in front of AME and on disc. Pars thoracic black, rugose; the rugosities tending to form lines parallel to radial furrows. A few black hairs on margins.

Eyes. Ocular area very much wider than long, 4.2 mm. by 1.2 mm. AME on slightly raised prominence, each eye 0.25 mm. in diam., round, and 2 diams. apart. Anterior row of eyes slightly procurved, posterior row strongly recurved. ALE raised, oval, inclined, 0.2 mm. in diam. and separated from AME by 1.5 mm., PLE raised, oval, inclined, 0.3 mm. in diam., 3.8 mm. apart and 1.1 mm. from ALE. PME 2.5 mm. apart, oval, sessile, 0.25 mm. diam. and 1.0 mm. from PLE and ALE, their front edges slightly behind line joining posterior edges of ALE.

Chelicerae. Basal segment 5.0 mm. long, rugose, black, with touch of red laterally and dorsally on apical half, rastellum of 6-8 black spines. Fangs black, 3.5 mm. long, curved. Promargin of cheliceral furrow with 6-7 large and 2-3 small teeth, retromargin with 5 large teeth, and a number of tuberosities between margins; with a slight scopula.

Labium. Longer than broad, 1.7 mm. by 1.3 mm., sides tapering, apex rounded, with long black hairs and distally with short stout spines; colour black except tip, which is reddish tinged.

Sternum. Black with black hairs, rather longer than wide, 5.0 mm. by 4.0 mm. Sigilla 4 pairs, second pair divided, posterior large, oval, and well separated from margins.

Maxillae. Black, 4.0 mm. long, 2.5 mm. wide, with scopula of long brownish black hairs, and some very short spines.

Legs. 1.4-2.3, shining black, trichobothria on all patellae, tibiae, metatarsi and tarsi. Tarsi and metatarsi with slight scopulae of short, close, slightly brownish hairs. Tarsal claws 3, superior slightly dissimilar, with 6-10 long teeth, inferior with 4-5 teeth (cf. fig. 3F-I).

Palpi. Black clothed with long brownish black hairs. Genital bulb brownish, stigma slender, more than half as long as tibia.

Spines. Patella, tibia, metatarsus and tarsus of all legs with many long strong black spines ventrally, those on metatarsus and tarsus of III and IV being latero-ventral; patella I and III retrodorsally rather swollen and pad like, especially I, with numerous, anteriorly directed, inclined or adpressed short stout spines forming a rastellum.

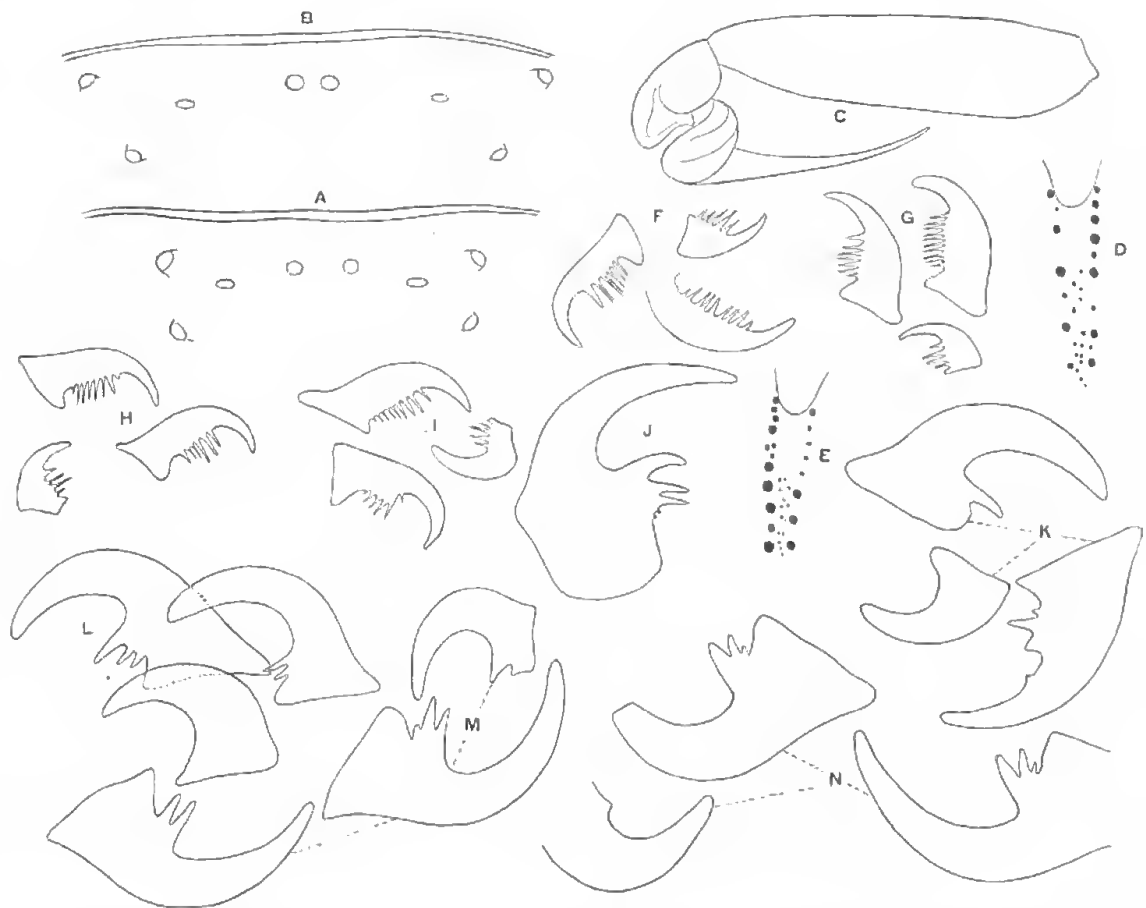


Fig. 3. *Missulena granulosa* (Camb.). A. eyes of ♂ × 9, B. eyes of ♀ × 9, C. palp of ♂, D. cheliceral teeth ♂, E. ditto ♀; F. claws of leg I ♂, G. ditto leg II, H. ditto leg III, I. ditto leg IV, J. claw of palp ♀, K. claws of leg I ♀, L. ditto leg II, M. ditto leg IV, N. ditto leg IV.

Abdomen. Brownish grey, with black hairs dorsally and ventrally; book lungs and in front of epigastric furrow concolorous. Ovate, slightly overlapping pars thoracica.

Spinnerets. Four, superior 1.8 mm. long, black; inner 0.5 mm. long.

♀ Total length (excluding chelicerae and spinnerets)	22.0 mm.
Length of Cephalothorax	10.0 mm.
Width of Cephalothorax	11.0 mm.
Length of Abdomen	12.0 mm.
Width of Abdomen	11.0 mm.

Lengths of leg and palpal segments in millimetres.

	Femur.	Patella.	Tibia.	Metatarsus.	Tarsus.	Total.
Leg I	6.0	3.8	3.5	3.2	2.4	18.9
Leg II	5.5	3.8	3.0	3.2	2.4	17.9
Leg III	5.7	4.4	2.8	3.5	2.5	18.9
Leg IV	6.9	4.5	4.0	4.0	2.5	21.9
Palp.	5.6	3.0	3.0	—	2.8	14.4

Width of 1st patella at "knee" 2.0 mm.; tibial index 27.4,

Width of 4th patella at "knee" 2.5 mm.; tibial index 29.4.

Carapace. Ovate, truncate in front, 10.0 mm. long by 11.0 mm. wide, rear margin incised, lateral margins slightly reflexed. Thoracic fovea fairly deep medially, procurved, radial furrows not very distinct. Pars cephalica 6.5 mm. high, 8.5 mm. long, piceous black, smooth, shining, with long piceous hairs in front of ocular area and along median longitudinal line and sparsely on disc. Clypeus black, narrow, about $2\frac{1}{2}$ diams. in front of AME. Pars thoracica concolorous, smooth, shining, with sparse hairs.

Eyes. Ocular area very much wider than long, 5.7 mm. long, 1.5 mm. wide. AME on very slightly raised area, each eye 0.25 mm. diam., $\frac{3}{4}$ diam. apart. Anterior row procurved, posterior row strongly recurved. ALE oval, slightly raised, inclined, 0.25 mm. diam. and 2.5 mm. from AME. PLE oval, slightly raised, inclined, 0.25 mm. diam., 2.2 mm. from AME and 5.0 mm. apart, and 1.0 mm. from ALE. PME horizontal, oval, sessile, 0.2 mm. diam. and 3.0 mm. apart, front edges in the curved line joining posterior edges of ALE and AME.

Chelicerae. Basal segment 7.0 mm. long, piceous, shining, with black hairs, except at inner apical angle where they are reddish, rastellum of 12–20 short black spines. Fangs 5.0 mm. long, piceous, fairly stout. Promargin of furrow with about 6 median to large, and 6–7 small teeth, retromargin with 5 small and 3 moderately large teeth basally, a number of tuberosities between margins; margins furnished with scopulae of reddish hairs.

Labium. Longer than broad, 3.0 mm. by 2.0 mm., sides only slightly tapering, piceous with black hairs, except at extreme tip where it is tinged with red and with red hairs, with numerous short spines apically.

Sternum. Piceous, with slight tinge of red medially, slightly wider than long, 6.0 mm. by 5.5 mm. With 4 pairs of sigilla, anterior pair almost obsolete, second pair subdivided, fourth pair large, oval, well separated from margins, hairs black.

Maxillae. 5.2 mm. long by 4.0 mm. wide, reddish piceous, with black hairs on disc, and scopulae of long red hairs, with many small blunt spines.

Legs. 4.1.3.2. Piceous, shining, trichobothria on all legs from patella to tarsus, some segments with many strong spines ventrally, no scopulae on any tarsi or metatarsi. Claws 3, upper claws with 2–3 teeth, slightly dissimilar, lower claw with 0–1 teeth (cf. fig. 3K–N).

Palpi. Piceous with long black hairs. Tarsus with single strong claw with three large inner basal teeth and traces of two smaller ones.

Spines. Tibiae, metatarsi and tarsi with many ventral spines. No spines on patella of any leg.

Abdomen. Arched, ovate, overhanging base of cephalothorax slightly, piceous in colour but dull with long brownish black hairs. In front of epigastric furrow chitinized, shining, brownish piceous, and concolorous with sternum and coxae.

Spinnerets. Four; superior concolorous with abdomen, stout, about 3.5 mm. long; inferior 1.0 mm. long.

Loc. ♂♂ Western Australia: Maida Vale, 26-283; Bridgetown, 26-322; Yotting, 26-693/4 (2 spec.); Wembley Park, 29-453; Palmyra, 30-424; Hollywood, 31-651; Mt. Lawley, 31-652; Bassendean, 32-1103; Nedlands, 32-1104; Cottesloe, 32-1461; W.A., K 8847; Perth, K 15260.

13 specimens.

♀♀ North Perth, 32-150; Cannington, 32-1427; Boologooro Sta., Carnarvon, no date.

3 specimens.

MISSULENA HOGGI nom. nov.

Eriodon incertum Hogg 1901, Proc. Zool. Soc. (2), p. 224, nec *E. incertum* O.P. Cambridge 1877, Ann. Mag. Nat. Hist., ser. 4, xix, p. 30.

Text fig. 4A-G.

The specimen described by Hogg from Swan River, Western Australia (coll. H. W. J. Turner) does not agree with Cambridge's original description, also from a Swan River specimen, but does agree with a second specimen referred to later by Cambridge (*loc. cit.* p. 31), hence the necessity for a new name. Further, Cambridge's original description of *incertus* agrees with that of his species *granulosum*, and these two species become synonymous.

Only known as yet from the male sex.

♂ Total length (excluding chelicerae and spinnerets)	10.0 mm.
Length of Cephalothorax	5.5 mm.
Width of Cephalothorax	6.0 mm.
Length of Abdomen	5.5 mm.
Width of Abdomen	4.0 mm.

Lengths of leg and palpal segments in millimetres.

	Femur.	Patella.	Tibia.	Metatarsus.	Tarsus.	Total.
Leg I	5.1	2.6	3.0	2.8	1.8	15.3
Leg II	4.5	2.5	3.0	2.6	1.8	14.4
Leg III	4.2	2.2	2.1	2.8	1.8	13.1
Leg IV	5.0	2.5	3.0	2.9	1.8	15.2
Palp.	4.5	2.5	3.5	—	1.6	12.1

Width of 1st patella at "knee" 1.2 mm.; tibial index 21.4.

Width of 4th patella at "knee" 1.5 mm.; tibial index 27.3.

Carapace. Ovate, truncate in front, 5.5 mm. long, 6.0 mm. wide, rear margin incised medially. Thoracic fovea deep medially, strongly procurved, radial furrows distinct. Pars cephalica 2.2 mm. high, 3.0 mm. long, almost black but with a tinge of dark red, strongly rugose but less so than in *granulosa*, a slight longitudinal line from behind middle of ocular area; a few long hairs in front of ocular area. Clypeus brown, about one AME in width, and two eye diameters away therefrom. Pars thoracica black, rugose, the rugosities tending to form lines parallel to the radial furrows, lateral margins reflexed and rugose, with a few hairs on margins but none on disc.

Eyes. Ocular area very much wider than long, 3.0 mm. by 0.7 mm. AME on slightly raised area, 0.2 mm. diam., and separated from each other by 1 diameter. Anterior row of eyes very slightly procurved, posterior row strongly recurved. ALB oval, inclined, raised, 0.2 m. diam., separated from AME by 1.1 mm. PLB

oval, inclined, raised, 0.15 mm. diam., 2.8 mm. apart. PME oval, horizontal, sessile, 0.15 mm. diam., 0.8 mm. from ALE, and front edges slightly behind line joining posterior edges of AME.

Chelicerae. Basal segment 4.0 mm. long, entirely bright red, lightly rugose with black hairs; rastellum of 8–10 stout black spines. Fangs dark red to black, 2.5 mm. long, curved. Promargin of furrow with about 3 large and 7–8 small teeth, retronmargin with 3 large and 3–4 small teeth. A number of small tuberosities between furrow margins. A light scopula of reddish black hairs.

Labium. Longer than broad, 1.5 mm. by 1.0., sides tapering anteriorly, apex rounded, with long black hairs and distally small blunt almost incipient spines; colour reddish black.

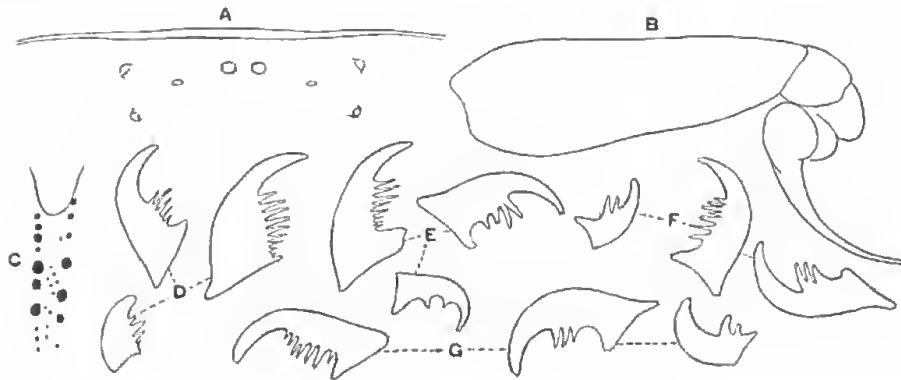


Fig. 4. *Missulena hoggi* n.n. ♂. A, eyes $\times 9$, B, palp, C, cheliceral teeth, D, claws leg I, E, ditto leg II, F, ditto leg III, G ditto leg IV.

Sternum. Oval, a little longer than wide, 3.5 mm. by 3.0 mm., blackish red, with concolorous hairs. Sigilla, 4 pairs, second pair subdivided, fourth pair large, oval, and well away from margins.

Maxillae. 2.8 mm. long by 1.6 mm. wide, with black hairs on disc, numerous small incipient spines and a scopula of long reddish hairs; colour dark reddish black.

Legs. 1.4.2.3. Shining black, light brownish scopula on tarsi and metatarsi of III and IV; trichobothria on all legs from patella to tarsus. Tarsal claws 3, upper with 3–9 teeth, dissimilar; lower with 2–3 teeth (cf. fig. 4D–G).

Palpi. Black, clothed with long black hairs. Genital bulb black, spiral; stigma rather less than half length of tibia, red basally, black apically.

Spines. Patella to tarsus of all legs with many long strong spines ventrally, those on tarsus and metatarsus of III and IV lateroventral. Patella I and III with short, curved, forwardly directed spines forming an accessory rastellum.

Abdomen. Greyish black with concolorous long hairs dorsally and ventrally; in front of epigastric furrow concolorous.

Spinnerets. Four, superior 1.5 mm. long, inferior 0.6 mm.

Loc. Western Australia: Darkan, 25–565; Williams, 38–2232; Pithara, 31–903; Mundaring, 28–625; Toodyay, 28–678.

5 specimens.

MISSULENA REFLEXA Rainbow and Pulleine 1918.

Australian Trap-door Spiders, Rec. Austr. Museum, 1918, xii (7), p. 87, pl. xxi, fig. 33, 34.

Text fig. 5A-G.

Redescription of Type specimens.

♂ Total length (excluding chelicerae and spinnerets)	9.5 mm.
Length of Cephalothorax	5.2 mm.
Width of Cephalothorax	5.5 mm.
Length of Abdomen	5.5 mm.
Width of Abdomen	5.1 mm.

Lengths of leg and palpal segments in millimetres.

	Femur.	Patella.	Tibia.	Metatarsus.	Tarsus.	Total.
Leg I	5.0	2.3	3.2	2.7	2.0	15.2
Leg II	4.0	2.2	2.7	2.5	2.0	13.7
Leg III	3.5	2.2	2.7	2.5	2.0	12.9
Leg IV	4.2	2.2	2.6	2.6	2.3	13.9
Palp.	4.7	2.5	4.3	—	1.2	12.7

Width of 1st patella at "knee" 1.0 mm.; tibial index 18.2.

Width of 4th patella at "knee" 1.2 mm.; tibial index 25.0.

Carapace. Broadly ovate, shining, truncate in front, 5.2 mm. long, 5.5 mm. wide, rear margin somewhat incised. Thoracic fovea deep medially, and strongly procurved (given as recurved by R. and P.), a deep longitudinal furrow from middle of fovea to posterior margin, radial furrows distinct, margins thick and

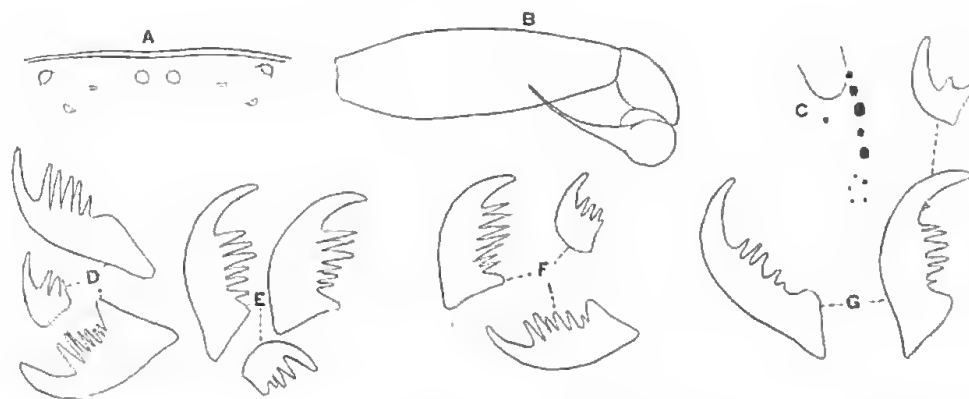


Fig. 5. *Missutena reflexa* R. and P. ♂. A. eyes $\times 9$, B. palp. C. cheliceral teeth, D. claws leg I, E. ditto leg II, F. ditto leg III, G. ditto leg IV.

reflexed. Pars cephalica 2.0 mm. high, 2.6 mm. long, bright red, rugose, with a longitudinal depressed line from centre of ocular area. Clypeus concolorous, sinuous, medially as wide as 1 AME diam. and about 2 diameters away therefrom, with a few reddish hairs in front of AME. Pars thoracica chocolate brown finely granular, margin reddish, a few hairs on margins.

Eyes. Ocular area wider than long, 3.0 mm. by 0.7 mm. AME on slightly raised prominence, each eye 0.2 mm. diam. and 1 diameter apart. Anterior row slightly procurved, rear row recurved. ALE inclined, oval, only slightly raised, 0.2 mm. diam., 1.0 mm. from AME. PLE oval, inclined, about as pedunculate as ALE, 0.1 mm. diam., 2.2 mm. apart, and 0.5 mm. from ALE. PME 0.1 mm. diam., broadly oval, 1.5 mm. apart, in line with posterior edge of AME.

Chelicerae. Basal segment 3.8 mm. long, concolorous with pars cephalica, shining, hairy with transverse striations, rastellum of 16–20 fairly long spines, dark red, in two or three rows. Fangs darker in colour, curved, 2.5 mm. long; promargin with 7 teeth, 2 large and 5 small; retromargin with 3 small as in figure; with scopula of reddish hairs.

Labium. Longer than broad, 1.2 mm. by 0.7 mm., sides tapering, apex rounded, without spines, red in colour.

Maxillae. 2.0 mm. long by 1.7 mm. wide, red, with scopula of reddish hairs, but no spines.

Sternum. As wide as long, 3.0 mm., reddish yellow in front, a little darker behind; sigilla distinct, 4 pairs, away from margins; posterior large, oval, anterior small; clothed with long reddish black hairs.

Legs. 1.4.2.3. (R. and P. say 4.1.2.3). Chocolate brown in colour, shining. Tarsal claws 3, superior claws with 5–7 teeth, inferior claw with 1–3 teeth.

Palpi. Chocolate brown in colour, with brownish hairs. Genital bulb reddish (fig. 5B), stigma lighter in colour, slender, curved, $\frac{2}{5}$ length of tibia.

Spines. Spination of leg-segments much as in other members of the genus.

Abdomen. Ovate, arched and slightly overhanging base of cephalothorax dorsally, clothed with long black hairs, colour as given in the original description, with a light yellowish patch anteriorly. Anterior of epigastric furrow and posterior booklungs concolorous with sternum.

Spinnerets. Four, concolorous with venter of abdomen, superior 1.0 mm. long, inferior 0.4 mm. long.

Loc. Type from Keith, South Australia. Australian Mus. Coll., K 40832.

MISSULENA BRADLEYI Rainbow.

Studies in Australian Araneidae, No. 6. The Terretelariae, Suppl., Rec. Aust. Museum, 1914, x (8), pp. 267–270, fig. 73–75.

Text fig. 6A–N.

Redescription of type specimen aided by additional material.

♂ Total length (excluding chelicerae and spinnerets)	10.5 mm.
Length of Cephalothorax	6.0 mm.
Width of Cephalothorax	7.0 mm.
Length of Abdomen	6.0 mm.
Width of Abdomen	5.0 mm.

Lengths of leg and palpal segments in millimetres.

	Femur.	Patella.	Tibia.	Metatarsus.	Tarsus.	Total.
Leg I	4.7	2.2	3.0	2.7	1.5	14.1
Leg II	4.5	2.2	3.0	2.5	1.3	13.5
Leg III	4.2	2.2	3.0	2.5	1.5	13.4
Leg IV	4.7	2.5	3.0	3.0	1.6	14.8
Palp.*	4.0	2.2	3.5	—	1.6	11.3

Width of 1st patella at “knee” 1.4 mm.; tibial index 26.9.

Width of 4th patella at “knee” 1.5 mm.; tibial index 27.3.

* Rainbow (*loc. cit.*) p. 269 gives the dimensions in mm. of the palpal segments as: “trochanter 10.2; patella and tibia 9.8; radial joint 1; total 21”, thus making the palp considerably longer than the legs; which is not the case in the type or in 3 other male specimens.

Carapace. Broadly ovate, shining, truncate in front, 6.0 mm. long, 7.0 mm. wide, rear margin slightly incised. Thoracic fovea deep medially and strongly procurved, radial furrows distinct, a deep longitudinal furrow from middle of fovea to posterior margin, margins reflexed. Pars cephalica 3.0 mm. high, 3.7 mm. long, not black (Rainbow) but a very dark chocolate brown, no trace of red; with a fine longitudinal groove from behind ocular area, surface finely granular. Clypeus reddish, about half the width of one AME and separated therefrom by one AME diameter, with 3 or 4 long black hairs in front of AME. Pars thoracica concolorous with pars cephalica and similarly slightly and finely granular, apparently without hairs.

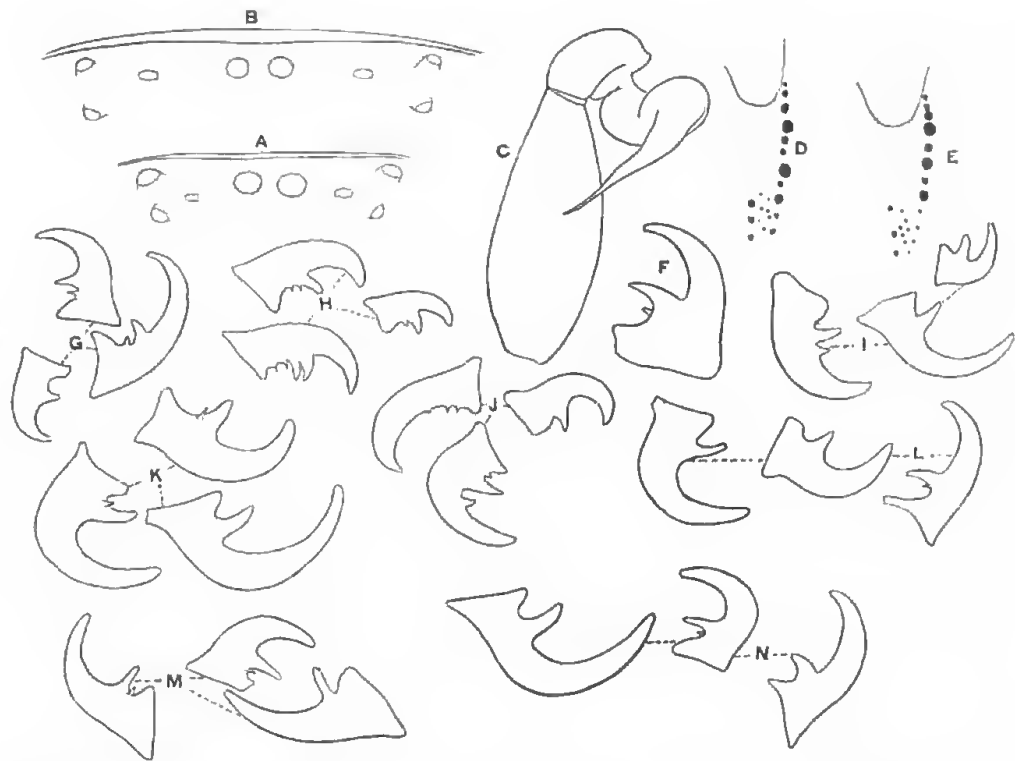


Fig. 6. *Missulena bradleyi* Rainbow. A. eyes of ♂ × 9, B. eyes of ♀ × 9, C. palp of ♂, D. cheliceral teeth ♀, E. ditto ♂, F. claw of palp ♀, G. claws of leg I ♂, H. ditto leg II, I. ditto leg III, J. ditto leg IV, K. claws of leg I ♀, L. ditto leg II, M. ditto leg III, N. ditto leg IV.

Eyes. Ocular area much wider than long, 3.8 mm. by 0.8 mm. AME on slightly raised prominence, each eye 0.37 mm. in diameter, round, and half a diameter apart. Anterior row of eyes slightly procurved, posterior row recurved. ALE inclined, oval, raised 0.3 mm. in diam. and separated from AME by 1.0 mm. PLE oval, raised, inclined, 0.25 mm. diam., 2.6 mm. apart, and 0.4 mm. from ALE. PME 0.2 mm. long, oval, long diam. in line with posterior edge of AME, 0.37 mm. from AME.

Chelicerae. Basal segment 4.5 mm. long, concolorous with cephalothorax, shining, with fine transverse striations, rastellum with 5-6 spines of same colour. Fangs concolorous, 2.2 mm. long, curved, promargin with 3 small gradually increasing teeth, then 3 large, followed by 2 medium and 20 small teeth, retromargin with only 3 small teeth near base, a few small tuberosities between margins, with slight scoptula.

Labium. Longer than broad, 1.5 mm. by 1.2 mm., sides tapering, apex

rounded, with brown hairs, and only incipient spines apically: colour rather light chocolate brown.

Maxillae. 2.0 mm. long by 1.7 mm. wide, with scopula of brown hairs, and on inner basal angle a few incipient spines. Colour light chocolate brown.

Sternum. 3.0 mm. long by 3.0 mm. wide. Light chocolate brown with brownish hairs. Sigilla distinct, 4 pairs, posterior large, oval, well separated from margin, anterior small, second pair entire.

Legs. 4.1-2.3, chocolate brown in colour; scopulae on tarsi and metatarsi III and IV, trichobothria on all tibiae, tarsi and metatarsi. Tarsal claws 3, superior claws with 2-4 teeth, some often very small (cf. fig. 6G-I), inferior claw with 1-2 teeth, second tooth if present, small.

Palpi. Chocolate brown with brown hairs. Genital bulb concolorous (fig. 6C). stigma slender, rather less than half length of tibia, darkened towards apex.

Spines. A distinct pad of many spines on distal inner half of patella I and III. A few in same position on leg II, none on IV; tibia, metatarsus and tarsus of all legs with a number of strong spines ventrally, those on tarsus and metatarsus of III and IV latero-ventral.

Abdomen. Ovate, arched, slightly overhanging base of cephalothorax, dorsally dark chocolate brown with minute yellow spots and on anterior half a large patch of bluish grey or yellow; sides concolorous with posterior portion of dorsum; dorsum with short spine-like hairs, interspersed sparsely with longer hairs; venter dark chocolate brown, with long hairs, and also spotted with yellow; in front of the epigastric furrow and the posterior booklungs strongly chitinized and concolorous with the sternum and legs.

Spinnerets. Four, light yellowish chocolate brown; superior 1.2 mm. long, 3 segmented, basal segment the longest, apical very short; inferior 1-segmented, thin, 0.5 mm. long.

♀ Total length (excluding chelicera and spinnerets)	15.0 mm.
Length of Cephalothorax	7.2 mm.
Width of Cephalothorax	8.0 mm.
Length of Abdomen	9.3 mm.
Width of Abdomen	9.0 mm.

Lengths of leg and palpal segments in millimetres.

	Femur.	Patella.	Tibia.	Metatarsus.	Tarsus.	Total.
Leg I	4.0	2.4	2.1	1.9	1.4	11.8
Leg II	3.8	2.8	2.2	2.0	1.5	12.3
Leg III	4.7	3.0	2.1	2.1	1.6	13.5
Leg IV	5.2	3.1	2.9	2.9	2.4	16.5
Palp	3.5	1.8	2.0	—	2.0	9.3

Width of 1st patella at "knee" 1.5 mm.; tibial index 33.3.

Width of 4th patella at "knee" 1.8 mm.; tibial index 30.

Carapace. Broadly ovate, shining, slightly wider than long, 7.2 mm. wide, 8.0 mm. long, truncate in front, incised in posterior margin. Thoracic fovea deep medially, strongly procurved, radial furrows distinct, longitudinal furrow from middle of fovea not so evident as in ♂, margins reflexed. Pars cephalica 4.0 mm. high, 4.6 mm. long, chocolate brown in colour, somewhat lighter at margins; with a few brown hairs in front of ocular area and scattered on disc. Clypeus whitish, as wide as the diameter of one AME and separated therefrom by the same distance. Pars thoracica smooth, shining, concolorous with pars cephalica, but a shade lighter, especially on margins.

Eyes. Ocular area very much wider than long, 4.7 mm. by 1.2 mm. AME almost sessile; each eye 0.25 mm. in diam., round, one diameter apart, each eye surrounded by dark pigment. Anterior row slightly procurved, posterior row recurved. ALE slightly reclined to horizontal, raised, 0.25 mm. in diam., base dark pigmented, separated from AME by 1.7 mm. PLE 0.25 mm. diam., raised, oval, inclined, 3.9 mm. apart and 0.6 mm. from ALE. PME 0.25 mm. diam., oval, 0.85 mm. from AME.

Chelicerae. Basal segment 6.0 mm. long, concolorous with cephalothorax, shining, with fine transverse striations, with slight scopula of brown hairs, rastellum with 10-12 short spines of same colour. Fangs a little darker, especially towards the tip, 4.0 mm. long, curved; promargin with 3 gradually increasing teeth, then 1 large, 2 small, 1 large, 1 small, 1 medium, then 2 small teeth; retro-margin with only 3 small teeth near base, and a few tuberosities between.

Labium. Longer than broad, 2.5 mm. by 2.0 mm.; sides tapering, apex rounded, with about 20-30 short stout spines; with long brown hairs. Colour, chocolate brown.

Maxillae. 3.2 mm. long, 2.7 mm. wide, with scopula of brown hairs and on inner angle a number of stout spines. Colour as for labium.

Sternum. 4.5 mm. wide and 4.5 mm. long. Colour yellowish chocolate brown. Sigilla in 4 pairs, away from margins, posterior pair large, oval; anterior small, second pair entire.

Legs. 4.3.2.1, yellowish chocolate brown in colour, dorsally rather darker. No tarsal and metatarsal scopulae; trichobotria on all tibia, tarsi and metatarsi; tarsal claws 3, superior claws with one large inner tooth, and usually a very small fine tooth in the inner angle of the large tooth; inferior claw similar. Hairs brownish.

Palpi. Concolorous with the legs; clothed with brownish hairs. Tarsus with single claw with large inner tooth, ventrally with strong spines in distal half.

Spines. Patella I and II without spines, III and IV with a few on the distal outer side; tibia III and IV with 2 dorsal subapical spines, metatarsi III and IV with 3-4 dorsal subapical spines, tarsus of all legs with ventral spines.

Abdomen. Ovate, arched, overhanging base of cephalothorax, dull chocolate brown in colour with a number of fine yellow spots but without the bluish grey anterior patch of the male, although this area is indistinctly indicated by a change in the corrugations or striations of the cuticle. With short spines arising from tubercles, and long fine hairs brown in colour. Venter except for the posterior booklungs concolorous with abdomen. Anterior of the epigastric furrow, and also posterior booklungs, concolorous with sternum and legs, a yellowish chocolate brown, strongly chitinized.

Spinnerets. Four, light yellowish brown. Superior 2.5 mm. long, 3-segmented and stout, inferior 1.0 mm. long, 1-segmented, thin.

Loc. Allotype ♀. Willoughby, N.S.W., Feb. 1928, Aus. Mns. Coll., K 57495. ♂ ♂ K 36151 (holotype); Wahroonga, 4/27 K 56174; N. Sydney, K 38153; K 62340; Eastwood, K 36064.

5 specimens.

KEY TO THE SPECIES OF *Missulena* Walckr.

♂♂

1. Abdomen dorsally with a light bluish or yellowish patch anteriorly, or entirely cinnamon yellow 2.
Abdomen dorsally entirely dark coloured 3.
2. AME large in proportion to length of ocular area, separated by $\frac{1}{2}$ an eye diam., and from PME by 1 diam. Superior claws of legs with not more than 4 teeth. Pars cephalica a dark chocolate brown without any trace of red. Abdomen dark with anterior bluish or yellowish patch. *M. bradleyi* Rainbow 1914.
AME small in proportion to length of ocular area, separated by 1 eye diam. and from PME by $2\frac{1}{2}$ diam. Superior claws of legs with 5-7 teeth. Pars cephalica bright red. Abdomen entirely yellow. *M. reflexa* R. and P. 1918.
3. Pars cephalica entirely bright red 4.
Pars cephalica entirely black or with only a trace of dark red anteriorly. 5.
4. Pars thoracica, legs and generally, a light chocolate brown with slight purplish tinge. AME separated by 1 eye diam., and from PME by 3 diam., surrounded with black pigment. Superior claws with 5 teeth. Labium and maxillae entirely without spines, even incipient ones. Promargin of chelicerae furrow with 3-4 large and 6 small teeth. *M. insigne* (Camb. 1877).
Pars thoracica, legs and generally, black. AME separated by 1 eye diam., and from PME by 2 diam. Superior claws with 4-6 strong teeth. Labium and maxillae with short but distinct spines. Promargin of cheliceral furrow with 8-9 large teeth. *M. occatoria* Walckr. 1805.
5. Pars cephalica strongly rugose, almost tuberculate, entirely black. AME separated by 2 eye diam., and from PME by $2\frac{1}{4}$ diam. Superior claws with 8-10 teeth. Labium and maxillae with short stout spines. Promargin of cheliceral furrow with 6-7 large and 2-3 small teeth. *M. granulosa* (Camb. 1870).
Pars cephalica less rugose, anteriorly with a tinge of dark red. AME separated by 1 eye diam., and from PME by 3 diam. Superior claws with 3-8 teeth. Labium and maxillae with numerous but incipient spines. Promargin of cheliceral furrow with 3 large and 7-8 small teeth. *M. hoggi* nom. nov.

♀♀

1. Basal segment of chelicerae, and anterior part of pars cephalica at least, reddish but not a bright red. Legs, pars thoracica and generally, a light chocolate brown with purplish tinge. AME separated by 2 diam. Superior claws with 1 large tooth, and sometimes a small one in inner angle. Palpal claw with trifurcate tooth. Promargin of cheliceral furrow with 4-5 large and 5-6 small teeth. *M. insigne* (Camb. 1877).
Basal segment of chelicerae and pars cephalica concolorous with pars thoracica. 2.
2. Eyes relatively small. PME very much nearer laterals than to AME, latter 2 diam. apart and 10 diams. from PME. Palpal claw with strong, basally trifurcate tooth. *M. occatoria* Walckr.
Eyes relatively larger. PME about midway between AME and the laterals. 3.
3. AME 1 diam. apart and 3 diams. from PME. Palpal claw with 1 large simple tooth with accessory small tooth. *M. bradleyi* Rainbow 1914.
AME $\frac{3}{4}$ diam. apart and 5 diams. from PME. Palpal claw with large 3-pronged tooth. *M. granulosa* (Camb. 1870).